

## ENVIRONMENTALLY SPEAKING

Peter Schwartzman

# Scientist exposes toxic chemicals

## Pekin native calls for safe substitutes

Dr. Sandra Steingraber, Who? A local hero and a scientist who has something important to tell us. Hopefully, we can listen.

Not too long ago, *The Zephyr* published a piece detailing all of the famous people that have either visited or lived in Galesburg. Well, you can add another to that lengthy list. Speaking last Sunday at Knox College, Dr. Sandra Steingraber not only visited but also left her mark on our community with words of wisdom and counsel.

Born in Champaign, Steingraber was adopted as an infant by a family in Pekin. She spent her entire childhood in this nearby city, only 47 miles (76 km) as the crow flies from Galesburg. She spent her undergraduate days at an Illinois school and didn't leave the state until her mid-20s seeking further education. Currently she is a research faculty member at Cornell University in New York. Given that she grew up less than 50 miles from our beloved town, we should consider her a local hero. This past Sunday night, she came to tell us what she has been doing for the past 16+ years, and based on her work over this time, it is clear why she deserves such heroic stature as well as our immediate ears.

According to Steingraber and a host of other scientific researchers, our civilization has literally doused ourselves and our complete surroundings (i.e., trees, soil, rivers, etc.) with thousands of chemicals. There are several aspects of this dousing that should concern us. First, and foremost, many of these chemicals are suspected to have damaging health effects on humans, as well as, other life forms. Second, most of these chemicals have only recently been produced (say, the last 40-60 years), so the environment is clearly changing and being challenged by these newcomers. Third, almost all of these chemicals exist in the forms and amounts that they do because of human practices—including agricultural, industrial, and many domestic activities as well. Fourth, many of the chemicals that we produce don't get used in a productive way—that is, they are wasted, disposed of, and/or left abandoned; consider that only a few percent (much less than 5 percent) of pesticides actually make contact with their host target. Fifth, most, if not all, of the chemicals used have replacements that are much less harmful or toxic. And sixth, and perhaps most discouragingly, many of us knowingly buy and use these chemicals without a moment's hesitation.

Do you think you have been doused with chemicals (i.e., overly exposed to toxins found in our environment)? Well, how would you know if you were? If you have lived in Illinois for most of your life, you have certainly been doused, and the older you are the more exposure you have undergone. In fact, if you have lived anywhere in the world sometime during the past sixty years, you have been exposed to many toxic substances as well. And, while many of us realize that we have lots of foreign materials in our bodies, ones that are likely damaging to our innards, we don't often give much thought to the matter. Steingraber tells us why this is a very disturbing state of affairs and something that we shouldn't continue to ignore.

Steingraber has spent the bulk of her recent life doing scientific detective work to determine how widely people have been exposed to toxic chemicals, and, more importantly, what effects have these exposures had on human lives. Her investigative research has uncovered the following key pieces of information that warrant our immediate attention; we are certainly indebted to her for bringing many of these findings to light:

▽ Cancer rates among persons living in the

United States have been increasing quite rapidly. Between 1950 and 1991, "the incidence of cancer in the United States rose 49.3%," (S1, 40), a particular disturbing statistic when one considers that the U.S. population has grown 64% over this same time. In the 1950s, only 25% (1 in 4) of us would develop cancer during our lifetimes, now the number is around 40% (38% for women and 48% for men) (S1, 40). Yes, amazingly, nearly half of the men reading this article will have to confront cancer in their lifetimes!

▽ Of the whopping ~75,000 synthetic chemicals currently in use, only ~2% have been tested for carcinogenicity (i.e., their cancer-causing effects) (S1, 99). There are more than 850 pesticidal active ingredients currently registered and nearly 50% of U.S. families use yard and garden weed killers as well as insecticidal flea collars, sprays, shampoos or dips for household pets (S1, 95). In 1979, the U.S. Congress passed the Toxics Substance Control Act which mandated the review of new chemicals, but since many of the currently used chemicals were produced before this date they don't require a review at all; so they haven't been. Unfortunately, despite this policy,

See STEINGRABER, page 14

### MOFFITT, continued from page 1

budget. If cuts were done everywhere, no single area would really be hurt too badly. Cuts of three to five percent across the entire budget would scale back many programs and services but few things would be eliminated."

Meanwhile the state's fiscal crisis is already hurting many who are owed money by the state. Illinois has never had a reputation for prompt payment of its bills but expected delays of weeks have transformed into many months. Moffitt says that evidence suggests a ten-year financial cycle for Illinois; approximately every ten years the economy tanks. He believes that recent state budgets have been responsible and spending within their means but that this cycle merely caught up with it.

Another key factor in this mess are the costs associated with the September 11 terrorist attack, according to Moffitt. "Homeland security has become a major unanticipated expense for this state and the nation. Many necessary but costly security changes were forced upon us by those events and few would argue with the need to bolster our security. The budget is still tentative but I am assuming that one area where there will be increases rather than

decreases is in further funding homeland security. As a legislative body we will have some important decisions to make there."

Moffitt sees himself as somewhat unique in Springfield with a streak of independence from the legislative leadership. "I was among the select few to come out early for increasing the tobacco tax. When I got out front of this idea I know it didn't please my leadership." Sin taxes are normally a legislative favorite and in this case the proposal is to increase the tobacco tax 75 cents per pack. Proponents of this tobacco tax say it will raise \$537 million in additional annual revenue even if it also leads to a ten percent decrease in smoking. Moffitt favors the tax but is skeptical of its actual revenue yield. "I am sure this will help us raise funds while simultaneously discouraging smoking, especially among young people, but I do think the anticipated number is a bit high."

Another proposed tax hike would hit Illinois casinos with a ten percent increase. Casino industry profits have soared in recent years and those who favor this tax foresee it contributing an additional \$180 million in annual state revenue. Moffitt sees this as another area worth exploring to help balance the budget. Unfortunately, both the tobacco and casino industries have a history of well-funded and successful lobbying efforts and this is an election year in a state with some of the most porous campaign financing rules anywhere. It is no wonder Moffitt feels lonely supporting these initiatives.

A Moffitt idea not being repeated much elsewhere is to resurrect the Illinois tax amnesty program used a few years ago. Those who are behind on state taxes would have the opportunity to fess-up and make good on unpaid back taxes without fear of financial or legal penalty. Moffitt projects additional one-time revenues of about \$67 million from such a program. Another Moffitt suggestion is to delay member projects that have not yet been completed and

which are not funded by Illinois FIRST bonds. To the extent that such spending has yet to come from the general fund, Moffitt believes there may be savings found here.

"I don't like to make program cuts but we have to run a responsible budget. Through a combination of the above and some other revenue producing ideas now being quietly floated about Springfield, we can make a real dent in the projected budget shortfall. I am somewhat skeptical of some of the revenue projections and aware that over optimism is partly to blame for the crisis we now find ourselves in. Nobody likes to speak of raising taxes, especially in an election year, and my goal is not to grow this government. But the State of Illinois has an obligation to pay its bills and to deliver the services we promised."

The regular session of the Illinois General Assembly is supposed to conclude on May 17th but that seems extremely unlikely. It is even doubtful that this mess will be cleaned up before the end of May but then another factor kicks in: if the legislature remains in session past May 31st, State Representatives and Senators cease receiving their \$85 per day expense money. Now in the greater scheme of a billion-plus budgetary shortfall \$85 per day many not seem like too big a deal—but you can't get nearer or dearer to the pocketbooks of the lawmakers.

Asked if balancing this budget is possible within the regular session, Moffitt blunted admitted "Not likely. This is a bi-partisan problem and every bit as much the responsibility of the state legislature as the governor. It will require a bi-partisan solution and cooperation with the governor. We must also resist the temptation to shift the impact of the revenue shortfall to local government or our schools. Shifting the problem won't solve the problem and will actually create additional problems over time. I'm sure in the end there will be an eleventh hour solution but don't see any way we can cut ourselves out of this dilemma."

**PROM  
PHOTOS  
\$2 OFF!**

Take your best shots and bring your film into Midwest Photo Service for quality processing and printing. Save \$2 a roll with this coupon.

35mm C-41 process only

**THE 2ND SET IS ALWAYS FREE!**

**MIDWEST  
PHOTO  
SERVICE**

158 N. Broad St.  
Galesburg  
342-6149

**LACY ENGLAND AGENCY  
INSURANCE**

HOME • AUTO • LIFE • HEALTH  
BUSINESS • FARM

131 N. Side Public Square

Knoxville

(309) 289-4137

**Needed: Honest  
person to help  
disabled veteran.  
343-8038**

Carl Hawkinson need not apply.

# ENVIRONMENTALLY SPEAKING

Peter Schwartzman

Steingraber, continued from page 8



Steingraber has found that an average person living in the United States has ~200 toxic chemicals in his/her body at measurable amounts, including pesticide residues, industrial solvents, electrical fluids, dry cleaning compounds, and dioxin. Worse yet, these toxins are found in all fluids and materials in one's body. Even worse yet, many of these don't readily leave the body, so they remain inside it, building up in concentration over the course of one's lifetime.

▽ Many rivers and lakes throughout the U.S. are so laden with toxic chemicals that fishing is often either prohibited or strongly discouraged. A local river, the Illinois, had more than 350 spills of hazardous waste between 1974-1989 and this doesn't even include those "spills" which are considered "acceptable," namely, routine industrial discharges and agricultural runoff. Thus, it is not surprising, that during the 20<sup>th</sup> Century, 20 species of fish disappeared from the river that bears our state's name, as well as nearly one-third of all native amphibian species and more than half of the mussel species (S1, 193). Steingraber, who grew up just blocks from the river, has found archival photos from the early 1900s showing how fecund (i.e., fruitful) the river once was and how people used to enjoy it so. Now, many of us Galesburgites drive over it time and time again, not noticing that, as one knowledgeable Peorian recently told me, the river, which looks quiet extensive and plentiful from bridge height, isn't more than a few feet deep in many places.

▽ Trash burning, which is "officially" done in incinerators and "unofficially" done in many backyards and rural areas, often produces chemicals that are as dangerous, or more dangerous, than most of the trash itself. "Even the newest, fanciest incinerators send traces of dioxin and furans into the air" (S1, 222). These two chemicals come from the simultaneous burning of organic matter (such as something as innocuous as newspaper) with children's toys (made of PVC, polyvinyl chloride), paint thinners, pesticides or household cleaners. With all of the different "soups" that get burned, more than 135 different furans and 75

different dioxins have been observed. And while some forms of dioxin seem to actually reduce the likelihood of breast cancer, acting as antiestrogens, they do so at a great price. Steingraber points out that numerous studies show that dioxin "depress[es] immunity," influences "thyroid functioning, blood glucose levels, sexual development, and testosterone production" (S1, 229).

Given all these reasons to avoid incinerators, why do they get built? Steingraber notes that small communities with financial difficulties often are targeted for the development of an incinerator. Unfortunately, many uninformed people in these communities are unsuspecting victims because they willingly accept the promise of jobs and money for local infrastructure at the expense of their, and others, lives and health.

▽ Chemical contamination occurs in the most unusual places and to unsuspecting groups. According to Steingraber, women in Greenland have some of the highest levels of breast milk contamination. Also, pubescent children appear to be extremely sensitive to chemical and radiation exposure given that their bodies are changing so rapidly during this period. These two observations suggest that no one goes unaffected by the chemical revolution of the 20<sup>th</sup> century and that at specific times in our lives, Steingraber refers to these as the "critical windows of vulnerability," (S3) we are particularly sensitive to exposure. Unfortunately, our policies concerning chemical production, dissemination, and release usually do not take into account these variations and inequities. For instance, Steingraber points out that our regulatory efforts focus on the premise that the "dose makes the poison," (S3) that is, below some safe threshold level of exposure people are safe, rather than the timing of the dosage, something that recent scientific work has revealed.

▽ One major misunderstanding of our population, according to Steingraber, is the perception that genetic and behavioral considerations are the key reasons why certain people get cancer (S1). And while there are definitely people more predisposed than others to cancer

based on their genetics and there certainly are particular behaviors that promote the onset and development of cancer, such as smoking and sunbathing, Steingraber is emphatic when she asserts that this is only part of the story. Anyone can get cancer regardless of their genetics and/or behavior. Literally hundreds of properly conducted scientific studies have shown that cancer rates are often highly correlated with contaminant concentrations (in the soil, air, and water). Steingraber urges us to stop seeing cancer as an acceptable fate for those that are genetically "inferior" or behaviorally unfit, but, rather, see cancer as an epidemic largely driven by our society's compulsion for materials that are made of or doused with dangerous and unnecessary chemicals.

All of the above findings are well and good but why should you, someone who lives in Illinois, be particularly concerned. As it turns out, a very informative website concerning environmental pollutants ([www.scorecard.org](http://www.scorecard.org)) gives us more vivid reasons. Illinois, in 1999, was among the 5 worst states in the country in the following categories: (a) air releases of recognized developmental toxicants; and, (b) air releases of recognized reproductive toxicants. So clearly, our state has a long way to go to clean up our act. A long road begins with a first step. On the bright side, our home, Knox County, receives a cancer risk score (considering air and water releases) among the lowest 20% in the U.S. However, on the negative side, Peoria County, our neighbor to the southeast, is among the worst 10% of all U.S. counties on measures of total environmental release of toxic chemicals and cancer risk score.

With all this information, it is understandable when one feels overwhelmed. But alas, there are many things that one can do to lessen the toxic exposure that all of us (ourselves, our kids, our grandparents, our cousins, our distant relatives, our pets, our birds, etc.) are currently subject to. According to Steingraber, there are three principles that need to begin to be incorporated into our current economic and political systems—precautionary principle, principle of reverse onus, and principle of the least toxic alternative—in order for us to move away from the invasion and dominance of toxic chemicals in our lives.

The precautionary principle asserts that action is warranted when "indications of harm" (S1, 270) are revealed rather than proof. Surprisingly, our country officially accepted the basis of this principle in 1992, when the U.S. signed the Rio Declaration on Environment and Development, an international guideline which states, "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation" (Rio Declaration, 1992). While the precautionary principle is a concept that has received quite a bit of acclaim lately, it hasn't yet been applied to the elimination of use of toxic chemicals in our environment. Having conducted many scientific studies herself and having examined hordes of research papers in the scientific literature, Steingraber concludes that scientific proof of the specific cause of a given cancer may be a long way off. However, she firmly believes, and so do many others, that there is sufficient evidence to indicate that many commonly used chemicals are cancer-causing. Furthermore, given the levels observed on a regular basis in our drinking water and our air, many chemicals deserve immediate phasing out.

The principle of reverse onus holds that companies that manufacture, sell, or dispose of potentially dangerous chemicals

should be responsible for demonstrating their safety. Steingraber points out that we hold the pharmaceutical companies to this standard, but she is very concerned that for most industrial chemicals "no firm requirement for advance demonstration of safety exists" (S1, 270). In short, why do we, the citizens of our nation, allow companies to produce, disseminate, and dispose of toxins without knowing their impact and without making the producers, rather than public, deal with the long-term repercussions of their use?

The third principle, the principle of least toxic alternative, posits that we should always be looking for alternatives which are healthier and safer. Too often the primary consideration in deciding which chemical gets used resolves around production cost and effectiveness. Very rarely are the costs to humanity, in the form of increased cancer potential or increased risk to miscarriage or birth defects, included in the company's or the agriculturalist's figures; obviously the costs to other life forms aren't included either. We all suffer from this short-term focus and long-term myopia (i.e., shortsightedness). We need to do better accounting and provide incentives for alternatives to be adopted. Steingraber is very hopeful and optimistic here, particularly because "for every carcinogen," that she examined, "somebody somewhere has found a non-toxic substitute" (S3).

In conclusion, Steingraber tells us that we all need to inform each other of the toxic soup that we live in as a means for changing industry's fixation on contaminants. We, ourselves, should also stop using known toxins to kill our weeds, deflea our dogs/cats, dry clean our clothes, and wash our homes. Known alternatives exist that are extremely safe, yet we and others are driven by convenience, ignorance, and profiteering. The website [www.scorecard.org](http://www.scorecard.org) also provides information about the toxicities of various chemicals (such as 2,4-D, Captan, Diazinon, Dursban, Dacthal, Dicamba, and Mecocrop; all of which you can find in local lawn care [a ridiculous euphemism, by the way] retailers). Please go to this site, which is very easy to navigate, before your next spraying or washing. Additionally, people can reduce our toxic burden by supporting organic farming, recycling rather than dumping, finding alternatives to "green" lawn landscapes, eating more vegetables and less animal products, and by using less energy. Every little step toward a cleaner world helps not only you but your neighbors, your fellow earthlings, and your great-great grandchildren too.

Despite the appearance of completeness, the knowledge and wisdom provided by our local hero, Dr. Sandra Steingraber, cannot be summarized in this relatively short article. Therefore, I implore everyone to read her books (noted below) or, better yet, pass one on to each of your loved ones—they will be grateful someday.

Dr. Steingraber had to confront the world of toxic contamination first-hand, when she was diagnosed with bladder cancer while an undergraduate. Let's hope that more people don't have to battle with this unfortunate (and avoidable, with proper changes in our industrial systems) disease for all of us to take notice.

Steingraber, Sandra. (S1) *Living Downstream: A Scientist's Personal Investigation of Cancer and the Environment*. New York: Vintage Books, 1998.

Steingraber, Sandra. (S2) *Having Faith: An Ecologist's Journey to Motherhood*. New York: Perseus Publishing, 2001.

Steingraber, Sandra. (S3) *Living Downstream—Having Faith*. Lecture. Knox College. April 21, 2002.